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ABSTRACT

"Give & Take" is a series of 12 15-minute television/film programs and related print materials on consumer economics designed to improve the economic knowledge and decision-making skills of 13- to 15-year-old students. This report describes the processes and presents the results of "Give & Take" formative evaluations which were conducted in age-appropriate classrooms to gather information to help insure that the final product would constitute an effective lesson. The environment in which the formative evaluation operated is discussed, as well as the plan for collecting reliable data on the programs at various stages of development and the issues, methods, and problems of the in-class evaluations. Individual evaluation synopses of all 12 programs form the bulk of this report; these synopses provide a sense of the major issues that arose during the development of each one, the sources from which these issues arose, and the decisions the project team made to address them. Appendices include a chart categorizing external review participants, lists of the script review team and evaluation sites and contacts, the questionnaire on treatments (i.e., the initial sketch of a proposed storyline), the student questionnaire, and a graph of student interest ratings for each rough-cut program. (THC)

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Research Report

Number 87

The GIVE &TAKE

Formative Evaluation

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IR011415

THE GIVE & TAKE FORMATIVE EVALUATION

Research Report 87

December 1982
Agency for Instructional Television
Box A
Bloomington, Indiana 47402

The Agency for Instructional Television is a nonprofit American-Canadian organization established in 1973 to strengthen education through television and other technologies. AIT develops joint program projects involving state and provincial agencies, and acquires and distributes a wide variety of television and related print materials for use as major learning resources. It makes many of the television materials available in audiovisual formats. AIT's predecessor organization, National Instructional Television, was founded in 1962. the AIT main offices are in Bloomington, Indiana.

IR011415

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Introduction

Give & Take is a series of twelve 15-minute television/film programs and related print materials on economics and consumer economics. The purpose of the series is to improve the economic knowledge and decision-making skills of 13- to 15-year-old citizens.

It was developed by a consortium of state and provincial education and television agencies under the supervision of the Agency for Instructional Television in collaboration with the Canadian Foundation for Economic Education and the Joint Council on Economic Education. The series was released in the fall of 1982.

Planning for the series began in 1979, and the prospectus was published in June 1980. In January 1981, a committee of distinguished educators, economists, and consumer specialists met in Bloomington, Indiana to develop a tentative design for the series. This initial curriculum document was reviewed by economists, economics educators, consumer specialists, representatives from labor, and teachers. The results of this content verification were reported in AIT Research Report #83. After additional review by the consortium funding this project, a revised design document was issued in July 1981. This document served as the blueprint for further series development.

The focus of evaluation activities then shifted. The instructional design, which had been the subject of the evaluation, now became the basis for the development and production of individual programs and, consequently, the guidelines for the formative evaluation activities. This report describes the processes and presents the results of *Give & Take* formative evaluation activities from the Final Report of the Design Team in July 1981 to the completion of the entire series in July 1982.

Context

The environment in which the formative evaluation operated helped determine the nature of this evaluation. This section will enumerate the purposes of the *Give & Take* formative evaluation, the composition of the project team, and the constraints within which the evaluation functioned.

The major purpose of the *Give & Take* formative evaluation was to gather information to help insure that the final product constituted an effective lesson. The lesson was considered to be a teacher introducing the program, students viewing it, and teachers then using the related teacher guide materials to conduct follow-up discussion of the salient issues.

The definition of effective lesson was multi-dimensional, encompassing a variety of concerns. The starting point in attempting to understand what an effective lesson would be was the series design. For each lesson, the design wedded a specific economic concept to a consumer application and established a set of appropriate lesson objectives. Two kinds of objectives had been delineated: "program" and "program and teacher." The general plan was that the on-screen program alone would enable teachers and students to achieve the "program" objectives without additional effort. Material relating to "program and teacher" objectives would be introduced in the program so that a teacher could meet those objectives by following up the material in more depth, with the assistance of the teacher's guide.

The responsibility of producing effective lessons was primarily that of the project team. The internal project team consisted of the project director, the chief consultant, and the evaluation staff. The team worked very closely with the script writers, production houses, the teacher's guide writer, and the staffs of JCEE and CFEE. The formative evaluation was complicated by the need to evaluate data from diverse sources, the very short time allowed between product availability and evaluation results, and the varying stages of development the programs were in at any given time.

Effective lessons had to meet the needs of a variety of audiences. Within the target grades — 8 through 10 — the merger of economics and consumer economics meant that the series would be used in a variety of disciplines including social studies, home economics, consumer economics, economics, and business education. The formative evaluation would help insure that the series met the needs of students and teachers within this range of disciplines. The series' many supporters — the consortium members and the Center and Council affiliates of the JCEE — were also considered important audiences and sources of information. The diverse perspectives they brought to the series frequently were reflected by their diverse opinions about a specific lesson or concept. The evaluation design sought convergence from this range of sources. Thus, one aspect of insuring effective lessons was to verify that the lesson could meet the needs of a variety of audiences.

The production of an entire series within one year placed other constraints on the entire project team. The time between first examination of a product to be evaluated and the evaluation report was normally a period of five to seven working days; this stringent timeline was unavoidable if the series was to be completed on time. Within that time, instrumentation had to be developed, teachers and classes contacted, in-class testing completed, and results analyzed and reported. This time constraint could not readily accommodate evaluation designs that required complex pre/post testing. Faced with this, the evaluation staff developed a design that used multiple methods to collect valid and reliable data from a variety of sources.

Each program in the series evolved from the design document through five distinct stages: treatment, draft script, final shooting script, rough-cut program, and finished product. Progression through the stages was not automatic; frequently, more than one treatment or more than one draft script were required. Seldom, if ever, were several programs at the same stage of development simultaneously. The teacher's guide often lagged well behind the television/film program. Hence, the evaluation staff was frequently working with programs at different stages of development, requiring different data collection efforts.

In summary, the evaluation staff had to formulate a plan to meet the formative needs of the project within the framework of diverse data sources, limited time, and the multi-stage developmental process.

Plan

Formative evaluation was at various stages of program development: treatment, draft script, final script, rough-cut program, and finished program. Some concerns could be generalized across all stages of each program's development. These include students' and teachers' level of interest in the program, believability, story comprehension, content comprehension, and content accuracy. These common issues were the central thread of the continuing program evaluation, although the emphasis shifted, depending upon several factors.

The first factor was the developmental stage itself. The information collected at the treatment stage had a different focus than at the rough-cut stage. Another factor was the source of the information. The type of data collected from students was substantially different from the type of data collected from consortum members or JCEE affiliates. A third factor affecting the data collected was the nature and content of the individual program. Since each program had a unique set of objectives and a unique storyline, a set of program-specific information needs surfaced for each program. To understand the eclectic nature of the series evaluation, one must understand the conditions and limitations at each stage.

Stage 1: Treatment. A writer was first given the objectives to be met by a program. After discussion with the project director and chief consultant, an initial theme for a story was selected and approved by the project director. The writer was then asked to prepare a three-to-four page narrative of the storyline incorporating a minimum of character development and dialogue. At this stage, all evaluation was focused on the potential for further script development. Did the storyline have potential to achieve the program's objectives? Was it interesting, appealing, realistic, and believable to the target-age group? Were there any negative stereotypes? Answers to these and other questions came from members of a pool of 165 reviewers (see Appendix A for description), 2 to 4 classrooms of students, 2 to 4 teachers, the project's chief consultant, and the staffs of AIT and JCEE. The reviewers were mailed the treatment and a questionnaire and given

ten days to respond. At the same time, AIT staff evaluators were conducting the classroom evaluations. Based on information from all sources, data often pointed to areas that needed changing and sometimes resulted in the rejection of a proposed storyline.

Stage 2: Draft script. Following treatment approval and with revisions based on information collected during treatment evaluation, the writer drafted a 13 to 17 page script with full character development, dialogue, scene descriptions, and proposed instructional interventions (animation, special visuals). Scripts were then taken out to classrooms for student and teacher evaluation. The chief consultant, JCEE, and AIT also reviewed these scripts. The main concerns at this stage were student interest, story believability, and comprehension of objectives. Often a draft script would undergo two or three revisions based on evaluation findings.

Stage 3: Final script. The final script reflected revisions based on both evaluation results and the comments of a special script-review team. The script-review team included representatives of the CFEE, JCEE, AIT, and consumer specialists who represented the U.S. Office of Education (see Appendix B for description). Its purpose was to give these representatives a final opportunity to examine the script prior to production. The shooting script was then sent to one of three production houses for actual filming.

Between final scripting and the start of production, the producers and staffs of the production houses usually offered suggestions necessitated by production capabilities and budget allocations — the architect's design had now met the carpenter's reality. In some cases, however, producer's suggestions were the result of the producer's expertise in creating naturally flowing dialogue and scene changes. The impact of the producers in making subtle improvements must be emphasized as a significant contribution to the series.

Stage 4: Rough-cut. The rough-cut was a roughly assembled version of the actual production and usually included little music or special effects and no opening or closing credits. Animation was often only in storyboard form. Major evaluation emphasis at this stage was placed on student attention and on comprehension of objectives. More extensive classroom testing (4 to 6 classes) was conducted at this stage by AIT evaluators and contacts made through local Centers of Economic Education and public schools. AIT staff

and the project's chief consultant again reviewed the programs at this stage.

Stage 5: Finished product. The final on-screen product incorporated revisions based on the evaluation of the rough-cuts. All music, special effects, and the opening and closing credits were added. If major changes had been made in the program (scenes reshot or dialogue altered) after the rough-cut evaluation, the revised versions were also tested in classrooms.

The above formative evaluation process is summarized in Figure 1.

Data on each program at each stage of development came from at least three sources: the staffs of AIT and JCEE provided regular reactions, ideas, and suggestions; the content consultant clarified all content points and worked extensively with script writers, producers, and evaluators; and teachers and target-aged students provided their response. The data from these three sources were enhanced and extended at various developmental stages with data collected from the remainder of the project's constituency. Thus, the entire evaluation process reflected the project's broad collaborative alliance.

The purpose of these extensive data collection activities was to provide information for the decisions that would be made. Ultimately, however, the burden of making these decisions rested with the project director and the chief consultant. The data flow on which these decisions were made is depicted in Figure 2.

Give & Take

Overview: Formative Evaluation Schema

Stage	Description	Evaluation Focus	Data Sources
Treatment	3-5 page narrative	Storyline potential Objective potential Interest/appeal potential Realism Stereotypes	Consortium Economics education specialists: centers, councils Instructional television specialists State Department of Public Instruction Representatives Students Teachers AIT/JCEE staff Chief Consultant
Draft Script	Full character development and dialogue	Student interest & appeal Character realism Storyline believability Storyline comprehension Objective comprehension	Students Teachers AIT/JCEE staff Chief Consultant
Final Script	Prepared for production house including didactic interventions	Student interest & appeal Character realism Storyline believability Storyline comprehension Objective comprehension Stereotypes Content Accuracy	Script Review Team Production house Chief consultant
Rough-cut	Unpolished production version with little music or special effects; intervention in storyboard form	Student interest & appeal Character realism Storyline believability Storyline comprehension Objective comprehension Student attention	Students Teachers AIT staff Consortium[1] Chief consultant
Finished Product	All music, special effects and credits added	Student interest & appeal Character realism Storyline believability Storyline comprehension Objective comprehension	AIT staff Chief consultant[2]

[1] Representatives attending May 1982 consortium meeting viewed selected programs and related comments to the project team.

[2] Two finished products (Programs 3,4) were further evaluated with students and teachers.

Figure 1.

GIVE & TAKE

DATA-BASED DECISION-MAKING PROCESS

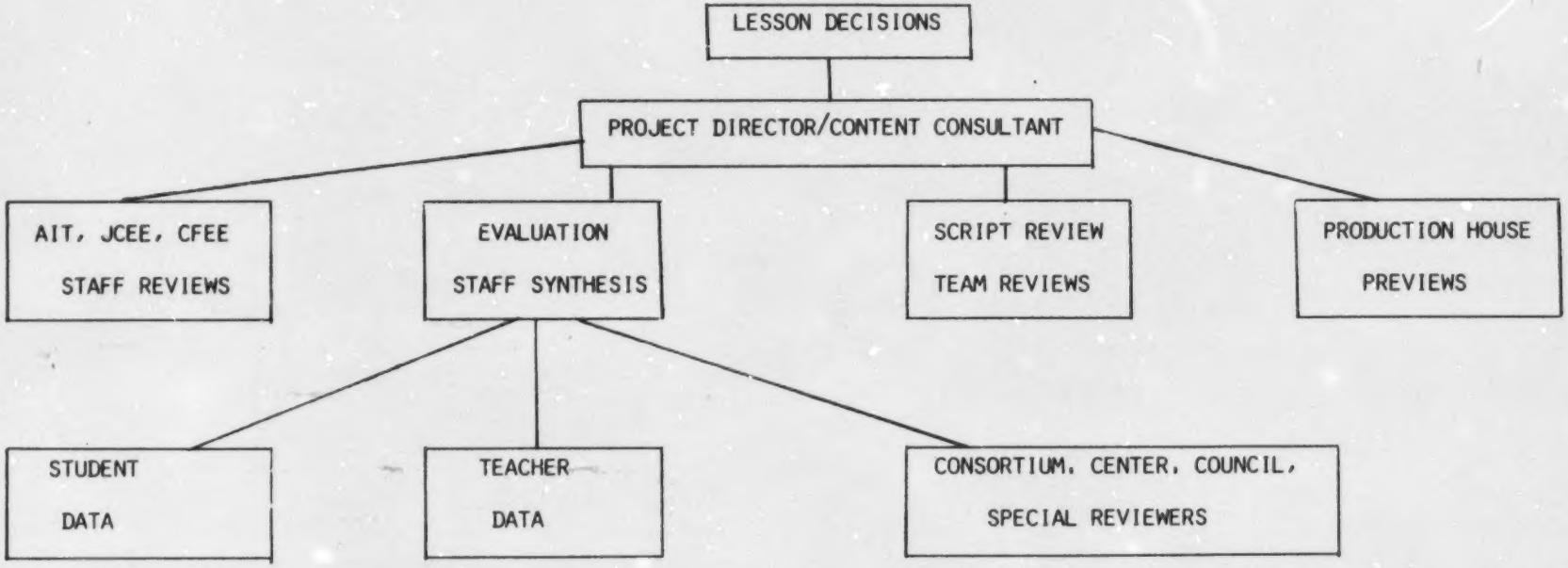


FIGURE 2.

Classroom Evaluation Process

Much of each program's evaluation focused on classroom reactions. This section of the report will chronicle the issues, problems, and methods of the in-class evaluations. It is divided into four areas: sample selection, instrument development, the actual in-class activity, and analysis and reporting of data.

Sample selection and barriers. AIT's approach to selecting classrooms for evaluation reflects a continuing concern for obtaining an adequate reprsentation of minority groups, sexes, ability levels, socio-economic levels, and community types (rural, urban, suburban) over the course of the entire series evaluation. During the *Give & Take* evaluation, over 4500 students were tested in 173 classrooms at 32 schools in 17 geographical areas in 10 states. Of these 4500 students, 70% were white and 25% were from minority groups; 49% were male and 51% were female. (See Appendix C, sites.)

The first task in obtaining classrooms for evaluation was to gain entry into a variety of school systems. One barrier was the variability of individual school system's policies for admitting external researchers. In some systems these policies required a single telephone call or letter; in other systems these policies necessitated a formal written proposal and personal contacts at various levels of authority. Most of these arrangements were made early in the project. A few systems, for a variety of reasons, refused AIT permission to evaluate within their system. With the assistance of several contacts (from Center or Council for Economic Education staffs, ITV coordinators, and local school system contacts), however, AIT received permission to enter a variety of school systems. The initial agreement by a system to participate in the evaluation was only the first step.

It was next necessary to make arrangements for a visit to a specific school, where teachers were willing to cooperate, where there were classes of the appropriate level, and where the school's schedule matched the project's timeline. In some cases schools were notified two weeks in advance, in other cases only a few days. These uncertainties were unavoidable since it was often impossible to predict the exact date a script or pro-

gram would be ready. Precautions were taken not to overburden one site.

Instrument development. The second step prior to in-class evaluation was the development of appropriate data collection instruments. A "normal" set of instruments for a program evaluation included a) student questionnaire, b) teacher questionnaire, c) classroom status form, and d) open-ended discussion questions. (See Appendix D for questionnaires.)

As we have seen, the emphasis of the instruments shifted with the particular stage of the program and across different programs. The instruments usually focused on appeal, story believability, character realism, storyline comprehension, and whether or not the program met its objectives A set of standard questions was developed to address appeal, story believability, and character realism. These items changed little from program to program, and thus provided points for comparison across programs or stages of programs. (See Appendix E.) Items based on storyline comprehension and objectives thus became the major focus of instrument writing activities.

While some content objectives involved simple recall and recognition, others included analysis and synthesis. For example, a program's objectives may have required students to define a term, give examples of it, apply it and describe its use in reference to a specific situation. The chief consultant checked the wording of key content items, especially for complex content issues and objectives.

In-class activity. When all evaluation materials were written and assembled, evaluators were ready for the in-class evaluation. After traveling to a school and meeting administrators and teachers, the evaluators arrived in a classroom for the evaluation. In some cases, inadequate equipment at a school was a problem.

Probably one of the most important phases of the in-class evaluation was the initial introduction and warm-up. Since a major focus of the evaluation was student discussion, it was very important that the evaluator established rapport with the students. Evaluators introduced themselves to the students and described the evaluation process to them, emphasizing the students' "important role as critics." The importance was reinforced by informing them that "five to seven million students will eventually see these programs." Students were told that they would be read a program (or see a program, depending on the stage), would complete a brief questionnaire, and would participate in a discussion of the program. They were

reminded that at every step, their most important job was "to be honest." Thus, the purpose of the warm-up was two-fold: to inform students of the process and to create an atmosphere conducive to open exchange with the evaluators.

Following the introduction and warm-up, the evaluation began. For treatments and scripts, the evaluators read the program to students. Given the limited length of secondary school classes and the variability of students' reading skills, this was the most efficient method of presenting the materials. For rough-cut programs, students simply viewed the programs. Following the presentation, students completed a questionnaire. At the same time, the teacher completed a questionnaire and a classroom status form that indicated the characteristics of the students in the class. Following the questionnaires, the evaluators led a discussion with the students. This discussion sought more detailed information, in the students' own words, about the program. In some cases, individual student interviews were conducted. Students and teachers were then thanked for their assistance.

Data analysis and reporting. After the entire process was repeated in two to five separate classrooms for each program, the evaluators returned to AIT with all data. The data were then coded and processed with the A-Stat Package on an Apple II microcomputer. Generally this analysis was completed within three to five hours of the evaluators return to AIT and significantly accelerated the reporting process. Where more sophisticated analyses were required, the data were processed using the SPSS statistical package on a CDC-6600 mainframe computer at the Wrubel Computing Center of Indiana University.

The final stage of the data analysis consisted of assimilating the computer-generated information with the detailed class discussion notes and with other data collected from non-classroom sources. Interpretation of questionnaire data was chiefly through the use of descriptive statistics (frequency, percentages, means, standard deviations). For every program, the data were also examined using a chi-square procedure for significant differences between sexes and grades. In cases where different program formats were presented, chi-square technique was also used in interpretation.

The evaluators' next task was to synthesize all these data and report it to the project team. Since time was at a premium, evaluators initially reported the findings to the project director and content consultant. These findings pinpointed concerns or problems in a particular program. Although evaluators usually made recommendations, the project director and content consultant had to decide on the course of action. These decisions were often determined via a conference call between the project director, content consultant, writer, producer or director, and evaluators. Specific information garnered from the evaluation was used to support or reject program changes.

Following this, thank you letters were written to administrators, teachers, and the contact persons who made the entire process possible. Evaluators then turned their attention to a new round of data collection, since products were continually forthcoming.

Individual Program Fvaluation

The following section presents evaluation synopses for all twelve programs. These synopses summarize large amounts of data from multiple sources. It is inevitable that a certain "feel" for the data will be lost. since they emphasize the evolutionary process for each program. This section's purpose is to give the reader a sense of the major issues that arose during the development of each program, the sources from which these issues arose, and the decisions the project team made to address these issues. It is important to realize that each program had its own unique developmental history. The issues, both content and storyline, that emerged varied greatly from program to program. The variability of the following synopses certainly reflects each program's unique history.

The first programs to be scripted and evaluated are presented first. The scripts and evaluation findings for these lessons were presented to those in attendance at the June 1981 consortium meeting. Based on consortium input, decisions were made at this meeting that had important implications for the remainder of the series. Following these, the lessons are presented in a sequence that does not at all reflect the chronological order of development; the entire year-long process was a hodgepodge of programs progressing through various stages.

The synopsis of each program's development is preceded by a page that lists the lesson's objectives as they appeared in the July 1981 Design Team Report, the final version of the objectives as they appeared in the Teacher's Guide, and a summary of the completed program storyline. By comparing the objectives from the July 1981 report to final objectives, one can gain a sense for the changes that were made in the objectives in the course of the lesson's creation. The synopsis of development and evaluation should help the reader understand why changes were made. Finally, the program summary should help the reader understand some of the specific storyline references made in the synopses.

Lesson 5

Where Do Jobs Come From? Derived Demand and Career Choice

Purpose

To help students apply the concept of derived demand to the area of career choices.

Design team report objectives

Program:

1. Students will be able to explain that jobs exist because people buy the goods and services workers produce. (The demand for workers is derived from the demand that consumers have for the things that workers produce. Changes in consumer demand cause changes in the demand for workers.)
2. Students will be able to explain how changes in consumer, business, and governmental decisions lead to creation and elimination of jobs.

Program & Teacher

3. Students will be able to give examples of the advantages and disadvantages of developing basic skills that will permit individuals to change jobs when it is desired or necessary.

Final objectives as they are written in the teacher's guide

1. Describe how jobs are created or eliminated by changes in consumer, business, and governmental spending decisions.
2. Give examples of the effects on workers of learning skills that enable them to improve their job opportunities.

Program summary

Lindy, who plans to pursue a musical career, is elated to win the lead in her high school musical, since it will help her win a scholarship she very much wants. At the same time, Lindy's mother, Emma, and brother, Scott, are making career changes. Emma works for Century Can Company, which is closing its local plant due to a decline in sales. Scott has decided to leave his government highway construction job to spend two years in electronic school.

Emma's only prospects are for a job in a running-shoe outlet — another semi-skilled job that has little security or promise for advancement. The family's financial difficulties concern Lindy and she considers giving up her lead in the musical to work in a local record store after school.

Lindy is offered a job acting and singing at a dinner theater in another town. Accepting the offer would mean giving up her lead in the school musical and her chance for further training. However, the experience would probably improve her career opportunities. As the program closes, she remains undecided among her three alternatives.

The program focusing on derived demand was one of the first two programs to be written. The initial treatment was started as the content design was being evaluated. There were several reasons for starting a program so early: 1) the project team wanted to present a potential script to those attending the June 1981 consortium meeting, 2) it seemed likely that the design for this program would not be substantially changed as a result of the design evaluation activities, 3) the project team wanted to try out some potential writers, and 4) the project team wanted to get a head start on production. For this program a concern throughout all of the developmental stages was to balance a very powerful dramatic storyline with the appropriate instructional objectives.

The first draft treatment (a girl wanted to buy a horse but her finances were negatively affected by changing economic conditions in her hometown, most notably her mother's recent lay-off) was begun in March 1981. The early start on the scripting meant that many of the evaluation procedures that have been described in this report were not yet in place. Therefore, the initial treatment was evaluated only in classrooms with no external review process.

Student testing indicated several problems. The story was only moderately appealing to students and the characters not realistic. The students specifically questioned the reaction of Emma (the girl's mother) to being laid off. Students also questioned Cassie's strong attachment to her horse. The power of the basic drama, a girl's mother is laid-off, was established during the first evaluation of the first treatment. Based on the data, however, the project team instructed the writer to undertake a rewrite with many of the story specifics altered. Most notably, the girl's horse was eliminated from the story.

Prior to the June 1981 consortium meeting, a script was written and evaluated in classrooms. To emphasize the program's purpose — career choice — the action of the story revolved around a teenage girl who wanted to become a professional entertainer. As she was auditioning for her high school musical, her mother was being laid-off. Students and teachers indicated that the program was appealing and believable and the characters realistic. The

instructional objectives, however, were being overwhelmed by the intensity of the family's problems. The ending, which included a dramatic family disagreement over what the girl should be, contributed to an overall message best summed up as "In hard times, families must pull together." Fortunately, the writer had included an alternate ending which focused on the character's career choices, rather than her family's problems. With other minor modifications and the alternate ending, the script was rewritten.

This revised script was shared with those at the consortium meeting, which presented an opportunity for review by the project's broad constituency.

At this meeting the consortium made a decision that had implications for the design of all programs. The consensus of the consortium members and project team was that "derived demand" was a concept that students should understand but not a term that they needed to define. In fact, the consortium recommended that all but the most critical terms be down played, placing emphasis instead on the concepts. The consortium reviewers also recommended that the instructional objectives be further reinforced in the program. Finally, one storyline concern was also voiced. Cassie (whose name would become Lindy), the main character, had a very antagonistic relationship with Melissa, another girl who was auditioning for the school musical. The consortium members wanted this relationship to be changed, and the antagonism was dropped from the story.

Based on recommendations from the classroom evaluation and the consortium meeting, another draft of the script was written in August. This draft was not evaluated in the classrooms. Instead, it was submitted to the script review team following the Joint Council's meeting in Hawaii. Only minor changes resulted from this review. The program was then submitted to production.

The classroom evaluation of the rough-cut indicated that the program captured and held students' attention and was appealing to them. Students thought the story was believable and they liked the characters, especially Lindy. However, the concept of derived demand continued to present problems. Given the strong storyline and advanced stage of the program, the project team was faced with a difficult decision: How to maintain the current level

of appeal and adequately cover the objectives? Several options were considered, including:

1. An advanced organizer that informed students of the key content points.
2. A flashback at the end that highlighted the following key content lines:
   a. Emma: "I never thought I'd lose my job because of plastic bags."
   b. Scott: "I don't want to have to depend on the government building or not building highways."
   c. Mr. Satlzer: "Demands change. The theatre could fold tomorrow... or it could be a big success."
3. A voice-over with Lindy reviewing key content points as they relate to her decision.
4. A combination of any or all above options.

The project team elected to add a dramatic advanced organizer in which the main character, Lindy, would personally relate the key content points to the audience. Since this style would be established, the team also decided to have her personally review for the audience at the program's end her career choice options and the implications of these alternatives.

These changes required additional shooting and a version was shown at the April 1982 consortium meeting. Generally, those in attendance reacted quite positively. Only one change was recommended at the consortium meeting. The project's special reviewer for labor took issue with the manner in which Lindy's mother was laid-off from her job at the can company. According to the union representative, the canning industry had a progressive management/labor relationship and a lay-off would not have been handled the way it was depicted in the program. The majority of those in attendance agreed that a change should be made.

Two weeks after the consortium meeting, the project's executive producer met with the labor representative at the production house to discuss the change. The specific dialogue was agreed upon and the scene was subsequently re-shot.

Lesson 8

Changing Taxes: Public Goods & Services

Purpose

To help students apply the concepts of public goods and services to the area of taxation.

Design team report objectives

Program:

1. Students will identify some goods and services that can be produced by either public (government) or private suppliers (e.g., recreation facilities, garbage collection).
2. Students will identify some goods and services that are produced only by government, since private suppliers are not likely to be able to provide them effectively (e.g., courts, national defense).
3. Students will give examples of how taxes are used to pay for publicly produced goods and services.

Program & Teacher:

4. Students will be able to develop an underlying rationale for determining whether a good or service is more likely to be produced publicly or privately using the principles of "divisibility" and "exclusivity."
5. Given a situation involving a change in public goods and services in response to a desire to reduce taxes, students will be able to use the explicit six-step model outlined in Lesson 1.
6. Students will be able to identify differing factors which influence the efficiency of production when goods and services are produced in the public and private sectors.

Final objectives as they are written in the teacher's guide

1. Define and give examples of private and public goods and services.
2. Identify goods and services that can be provided by either public or private suppliers.
3. Explain the relation between the level of taxation and the amount of public goods and services provided by government.
4. Explain, with examples, how various types of taxes are used to pay for public goods and services.

Program summary

Dennis Jones is working part-time at a local skating rink operated by the city Parks and Recreation Department. At the rink he meets Sarah, the cousin of a friend. Sarah and Dennis seem to like each other and he is disappointed to discover that she lives in another city. Since Dennis is saving his earnings to buy a car, he thinks he will be able to visit Sarah.

At home, Dennis learns that people have voted to cut property taxes and that local governmental services may have to be reduced. Later, Dennis is laid off his job because the operating budget of the Parks and Recreation Department is cut. Police protection and road repair are considered more essential services. Dennis is now unable to buy the car he needs to visit Sarah. His father, however, is expanding his private refuse collection business, since the city has cut back on garbage collection for local businesses. Dennis decides to use his father's new garbage truck to visit Sarah.

As with the program on Derived Demand and Career Choice, the initial developmental work on this program began in Spring 1981, at the same time the design was being evaluated. Throughout its entire developmental history, the basic storyline for Public Goods & Services remained essentially unchanged (A boy lost his job at a city owned skating rink due to budget cuts caused by a tax cut. Since he could no longer hope for the car he had been saving for, he had to borrow his father's garbage truck to go out on a date.) The developmental process thus became concerned with progressively strengthening the lesson's objectives.

Due to the early initiation of this script, many of the evaluation procedures that have been described in this report were not yet in place. Therefore, the treatment was evaluated only in classrooms, with no external review. The findings from the initial classroom testing of the treatment were positive. Students liked the story and the characters. Although most indicated it wasn't realistic for a boy to take a girl out in a garbage truck, students visibly and vocally reacted to this aspect of the story and indicated it should be left in the program. Given the paucity of content-related material at the treatment stage, students were able to recognize "the effect of changing taxes" as a program theme. The project team instructed the writer to script the program.

When the draft script was evaluated in classrooms, the findings indicated the basic storyline continued to be appealing to students. One comprehension problem emerged; students did not realize Dennis's father was in the garbage business and the origin of the garbage truck was unclear to them.

Problems with the objectives were anticipated since the script did not yet contain a didactic intervention (animation or special visuals). Students had particular difficulty with Objective 1 (identify some goods that can be either publicly or privately supplied). In addition, the content consultant indicated

that the type of tax discussed in the program needed to be changed. Thus, the tax became a local property tax instead of a state tax.

At this point, one month prior to the June 1981 consortium meeting, the project team decided the script was sufficient to present to the consortium members. However, they wanted to present the program in a format that would approximate an actual finished product. The team decided that a slide/tape format would be the most efficient means of graphically depicting the script. A slide/tape version of the script was produced in one day, mainly using AIT staff members for the voices, and pictorial models.

The project team now had to confront an important instructional design issue. Up to this point, the writer had assumed that an animated insert would specifically address, repeat and reinforce the lesson's objectives. This technique had proven successful with the *Trade-offs* series. However, including the insert meant interrupting the drama. This was an important format decision. The team felt it warranted empirical testing to determine the effectiveness, appropriateness and appeal of limited animation for the target-age students. Therefore, two versions of the slide/tape presentation were produced: one contained animation on slide and one did not.

Two weeks prior to the consortium meeting, the two versions of the slide/tape presentation were tested with students. Both were appealing to the students but those who had viewed the version with the animated segment performed significantly better on the items measuring the lesson's objectives. The objectives, however, even with animation, were still presenting problems for the students.

The slide/tape presentation (with animation) was shown at the June 1981 consortium meeting. For this program, review by the consortium substituted for what would become the standard treatment review. Consortium members responded positively to the program. They also concurred that, for programs in which key terms were to be defined (public and private goods) animation or other special visuals would be appropriate. The consortium indicated the content consultant should decide which terms warranted specific explication and which terms did not.

The next significant revision of the program came in October at the Script Review Team meeting following the Joint Council's conference in Hawaii. The two

objectives that dealt with whether or not goods should be publicly or privately produced were eliminated. The program objectives became more clearly focused. In addition, the project team began to see the need for an additional lesson on taxation which would eventually become the "Wild Card" program left undefined in the design report.

One final classroom evaluation of the script, with the revised objectives, was conducted prior to production. Again, students liked the program and thought that the characters were realistic. Most importantly, the objectives were also coming through more clearly to the students although Objective 1 (students will identify some goods that can be provided by public or private suppliers) continued to present problems. Acting on these findings, the project team sent the script to production.

Since the animation was not completed, evaluators inserted a slide/tape storyboard of the animation at the appropriate point in the rough-cut. They found that students liked the programs and understood the storyline. Most students were able to identify some goods that can be provided only by government. Although some students continued to have problems identifying some goods that can be provided either publicly or privately, the majority were able to accomplish this objective. Finally, the teachers whose classes participated in the evaluation liked the program and thought it would require very little effort on their part to teach the objectives to their students. Most importantly, all teachers indicated they would use the program with their students.

Subsequent to rough-cut testing, additional modifications were made in the animation to further reinforce Objective 1 (goods that can be either publicly or privately produced). Furthermore, since it became apparent the taxation issue was too complex for one 15-minute program, the original set of ojectives were broken up to cover two lessons.

Lesson 1

You Choose: Scarcity & Personal Decision Making

Purpose

To introduce an explicit process of decision making and help students apply this process to situations involving time budgeting and money management.

Design team report objectives

Program:

1. Students will define scarcity as Limited Resources that have alternative uses. (Scarcity includes limitations on the supply of personal resources such as time, energy, space, as well as money.
2. Students will be able to explain why scarcity necessitates choice. (If limited resources have alternative uses, a choice must be made among the alternatives.)

Program & Teacher:

3. Given a situation involving scarcity and choice, the students will explicitly use a six-step model to:
   a. define the problem in terms of the issue of choice that is raised (Why is there a problem? What objectives are not being met?)
   b. identify alternatives for dealing with the problem
   c. specify criteria to be employed in evaluating the alternatives
   d. analyze the cost and benefits of each alternative in terms of the specific criteria
   e. make a decision

Final objectives as they are written in the teacher's guide

1. Explain why scarcity requires making choices.
2. Give examples of situations in which scarcity necessitates making choices.
3. Apply the decision-making model to personal economic situations.

Program summary

Lily Navarro wants to earn money during her one week vacation, but her friend June thinks vacation time should be spent relaxing. Special visuals demonstrate a decision-making model that could be applied to their problem. The girls reach the conclusion that they should offer to paint Mrs. Schultz's apartment.

Mrs. Schultz agrees to pay $700 for the job and the girls use their savings to purchase paint and supplies. Mr. Navarro believes that the girls rushed into the "contract" before they knew how difficult and time-consuming the painting would be.

Lily and June watch their expenses increase and their time and energy decrease. They use the decision-making model and decide to hire Mr. Navarro to help them finish. As the program ends, a friend of Mrs. Schultz asks the girls to paint her apartment.

In terms of content, "You Choose: Scarcity & Personal Decision Making" is a key program in the series since it explicates the five-step decision-making model and places the model in the context of the basic economic problem of scarcity. These concepts, particularly the decision-making model, form the cornerstone on which much of the remainder of the series is based.

The basic storyline for this lesson remained intact throughout all the developmental stages: two girls agree to paint an apartment for an older woman and encounter problems completing the job within their original budget estimate and deadline. Since the rather didactic decision-making model was to be presented on a grid with a "special visual," the classroom testing of the treatment and script could only crudely approximate the actual finished product.

Treatment evaluation indicated students found the storyline interesting and believable. A variety of concerns did arise, nevertheless. Classroom testing indicated: students didn't like the name of one of the main characters (Peeper, later changed to Pepper, and finally to June), they weren't able to define scarcity, and the specific components of the grid were confusing. Treatment reviewers reinforced the concerns about the name "Peeper," and the problems in interpreting the grid. Additionally, several reviewers weere concerned that the older woman, Mrs. Schultz, was portrayed as a poor consumer. Despite these reservations the project team concluded that the basic storyline had enough potential to warrant further development.

Classroom testing of the draft script indicated that defining scarcity and the specific symbols used within the grid continued to be problems. Students and teachers also continued to express doubts that Mrs. Schultz would have hired the girls. These concerns, all of which had persisted from the treatment, led the project team to have serious doubts that all the objectives could be achieved within the context of a 15-minute program. Given this limited amount of time, the content consultant suggested eliminating "define scarcity" as an objective. Thus, without defining scarcity, students would only need to realize that when things are scarce, people must make choices and that the decision-making model can help clarify these choices. Given the change in objectives, another draft script was written to reflect the new set of objectives

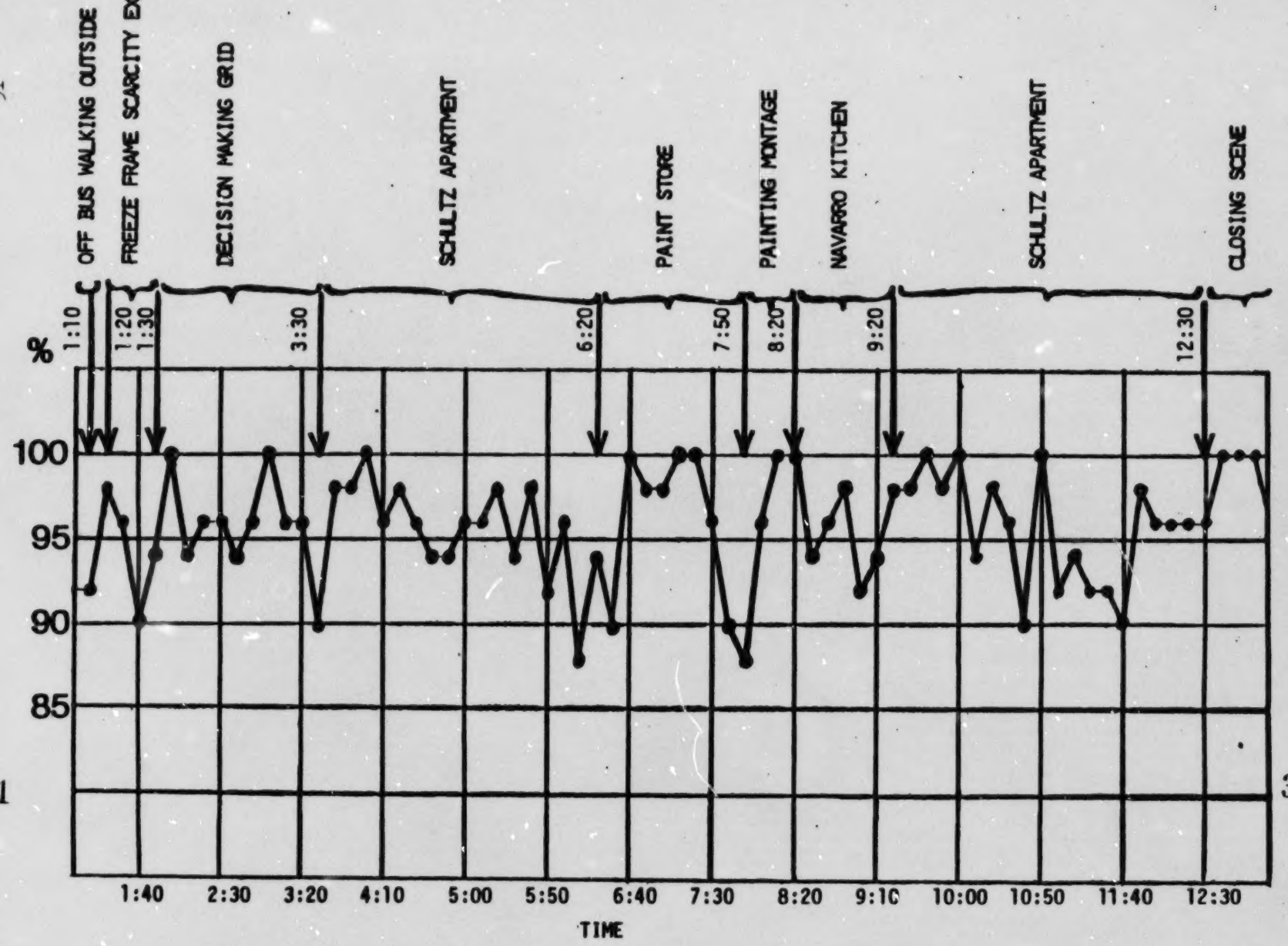
and the concerns about Mrs. Schultz being a poor consumer. This draft was presented to the script review team, which met following the Joint Council's national conference in October 1981.

The script review team addressed an on-going concern: problems in understanding the symbols and terms used within the grid. The team simplified the grid and made the symbols consistent. What at one time was the use of four distinct symbols on the grid, was now reduced to two: "+" and "-"; descriptive terms were clarified and made consistent. The team also identified another weakness: the program didn't specifically address the use of money management. To compensate for this, a clipboard, on which the girls calculated their budget for the job, was inserted into the program. Following this meeting, the script was sent to the production house.

At this point, the evaluators had been able to only crudely approximate the program's special visuals, which were critical to teaching the decision-making model. As the program entered production, there was unavoidable uncertainty as to how these special visuals would affect student attention to the program. Thus, the rough-cut program was extensively evaluated.

This evaluation utilized the AIT attention program, which graphically depicts students' attention to the screen. The results (see chart on p.31) indicated 90-100% of the students attended to the screen throughout the program, including during the special visuals. This high level of attention was but one indication of the program's appeal. Students and teachers alike indicated they found the storyline believable and interesting. Most importantly, students comprehended the key content points.

Thus, while the basic storyline for this lesson remained intact throughout the developmental process, each stage in the process strengthened the intended content. However, one objective (define scarcity) was eliminated dur to the constraints imposed by a 15-minute time limit. The result was a program that both students and teachers found appealing and that achieved its instructional objectives.


OFF BUS WALKING OUTSIDE
FREEZE FRAME SCARCITY EX.
DECISION MAKING GRID
SCHULTZ APARTMENT
PAINT STORE
PAINTING MONTAGE
NAVARRO KITCHEN
SCHULTZ APARTMENT
CLOSING SCENE
1:10
1:20
1:30
3:30
6:20
7:50
8:20
9:20
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11:40
12:30
TIME

Lesson 2

We Choose: Scarcity & Social Decision Making

Purpose

To help students apply the concepts of social decision making and conflicting goals to the area of consumer protection.

Design team report objectives

Program:

1. Students will describe how social decision making (public policy) deals with conflicts and trade-offs among goals in specific situations.
2. Students will give examples of how public intervention to protect consumers may involve trade-offs among social goals.

Program & Teacher:

3. Students will be able to distinguish between situations in which the government tries to protect consumers from the action of others and situations in which the government tries to protect consumers from their own decisions.
4. Given a situation involving a specific consumer protection issue, students will be able to use the explicit six-step model outlined in Lesson 1.

Final objectives as they are written in the teacher's guide

1. Explain why trade-offs among social goals are often required in public policy decisions.
2. Give examples of trade-offs among social goals in specific policy decisions.
3. Apply the decision-making model to public policy issues involving consumers.

Program summary

Students at South High usually leave the school grounds at lunch time and cross the highway to visit fast food restaurants and play video games. When Joey, a freshman, is injured by a car, the principal threatens to restrict all students to the school grounds every day during lunch unless the student council can come up with a better alternative that meets the criteria of student safety, proper student nutrition, and no additional cost to the school. The student council adds its own criterion of freedom for students.

The council investigates various alternatives, including using crossing guards. Ross, one of the seniors on the council, recommends that only ninth and tenth graders be restricted. The council elimirates the crossing guard alternative because it does not meet the "no additional cost" criterion. Ross's alternative of restricting only younger students meets the criteria of "safety" and "nutrition" well enough to satisfy the principal and meets the criterion of freedom well enough to satisfy the older students. The younger students object and the council is deadlocked.

Helena, the council president, and Ross, her boyfriend, each visit Joey who is recovering at home. They discuss the trade-offs between protection and freedom. When Joey returns to school he must — as a student council representative — cast the tie-breaking vote to restrict all students or only the younger ones.

The program on Social Decision Making was a struggle. It went through more treatment drafts (3) and script drafts (4) than any program in the series. The entire developmental process — treatment through rough-cut — took far more time than any other program in the series. The program's topic, social decision making, was rather difficult to handle and the arduous developmental history of this program no doubt reflected the complexity of its instructional objectives.

The evaluation of the initial treatment (three teenagers ran a water-taxi service and encountered problems complying with safety regulations) indicated a variety of problems. Students found the program unappealing, the characters too old, and the instructional objectives not evident. The treatment reviewers substantiated the student findings. These reviewers emphasized the inadequacy of the treatment in addressing the objectives. Based on these rather dismal findings, the project team decided that the treatment probably did not have enough potential to warrant further development.

A second treatment (teens worked at a swimming pool and encountered problems complying with city safety regulations) was written. Evaluation with students and teachers indicated that the second treatment was more appealing to students than the first treatment had been, but that the objectives needed to be strengthened. The project team decided the treatment had enough potential to warrant scripting.

The writer then developed a draft script which was evaluated with students and teachers. Although its appeal was adequate, character realism and story believability were problems. As with the treatment, the objectives were not adequately addressed. The project team was faced with a difficult decision. Time was slipping away, the program had progressed to the script stage, and yet the data indicated the storyline had major problems in its inability to provide a structure for the objectives. The project team decided to scrap the proposed storyline and begin a new treatment.

After an extensive brainstorming session between the writer and the project team, a third treatment (a divided student council had to decide on a recommendation to the principal regarding an open or closed campus at lunch time) was begun. The delays and rewrites had already placed the program significantly behind schedule. That, coupled with the upcoming Christmas vacation for schools, meant there was no time for an in-class evaluation. The treatment was shared with the project team and the staffs of AIT and JCEE. It was well received by these groups who also provided a variety of suggestions for modifications. The writer then drafted a script, which was evaluated in classrooms after the Christmas holidays.

After three treatments and two draft scripts, the evaluation findings were finally positive. In-class testing indicated that the story was appealing to students, the characters were perceived as realistic, the storyline was comprehensible, and the objectives were met. The program was then submitted to the script review team who made minor modifications and was then sent — having been through a six month scripting process — to production.

When the rough-cut was evaluated, students indicated that the program was appealing, the story believable, and the characters realistic. Students also comprehended the storyline and the objectives.

The rough-cut was also evaluated by sixteen teachers, some of whom viewed the program with their classes and some of whom viewed it in a conference setting. The teacher findings were also positive. All teachers indicated that they liked the program and thought their students would find it interesting. Most indicated that it would require very little effort on their part to teach the objectives after their students viewed the program. Finally, most of the teachers indicated that they would use the program with their classes.

Thus, after a long and difficult developmental process, the program on Scarcity & Social Decision Making was completed. The difficult task of combining a believable and appealing story with the instructional objectives was accomplished.

Lesson 3

Let's Save: Opportunity Cost

Purpose

To help students apply the concepts of opportunity costs and trade-offs to the areas of spending and saving.

Design team report objectives

Program:

1. Students will define opportunity cost as the loss of the next most desirable alternative when limited resources are used for one purpose instead of another.
2. Students will describe how saving involves foregoing spending today in hopes of having larger amounts of money to spend tomorrow.
3. Students will give examples of the various forms of saving.
4. Students will be able to explain how all savings decisions involve trade-offs among the safety of the investments (risk), the ease of getting the money back (liquidity), and the amount of interest the investment earns (return).
5. Students will be able to explain why in times of inflation (rising prices) the real rate of interest can be lower than the nominal rate of interest earned on savings.

Program & Teacher:

6. Given a situation involving a savings decision, students will be able to use the explicit six-step model outlined in Lesson 1.

Final objectives as they are written in the teacher's guide

1. Define "opportunity cost" and give examples of the opportunity cost of saving.
2. Describe how various savings plans involve trade-offs among the goals of safety, liquidity, and return.
3. Apply the decision-making model to saving and spending decisions.

Program summary

Robert Jones, Ricky Bloom, and Paco Fernandez play in a rock trio. They are invited by Mr. Bogart, the owner of a recording studio, to enter a talent contest in which the winner gets to cut a single record. Mr. Bogart tells the boys that they need eye-catching outfits to impress the judges.

The boys find outfits they like and that will help them make more money after the contest, but three outfits will cost $1,200. They decide to save all their earnings from playing at teen clubs and to give up such

extras as movies, pizza, records, and new clothes. After talking with a manager in a financial institution, they decide to put some money in a savings account for safety and the rest in a money market mutual fund for higher interest. Ricky discovers that he needs $300 immediately because he had offered earlier to buy a plane ticket for his mother. He pawns his guitar, but his friends decide that the best solution to the problem would be to have Ricky get his guitar back and purchase only part of their outfits for the contest. The program ends as the boys hear the announcement that they have won the contest.

An initial treatment for the lesson on savings and opportunity cost was submitted in August. Similar to the old television series, "The Millionaire," this treatment was quickly rejected by the project director and chief consultant. In late October a new treatment was received. The project team felt so strongly about the potential in this treatment that it was not evaluated in classrooms.

Reviews by council and consortium members raised two important issues, however. The first concerned the description of the major character who was a poor Hispanic named Richard. The reviewers felt that there were too many negagive stereotypes: a Hispanic child giving money obtained from a loan shark to his poor mother. The main character was changed and another member of this trio was designated as Hispanic. The second issue was the use of a "loan shark." Some reviewers felt the loan shark should be dropped entirely from the story; others said "handle with care." One additional content issue raised by the special reviewer representing labor was the lack of mention of credit unions as a place to save.

A number of draft scripts were revised in-house prior to full testing. The responses to readings of the revised script in classrooms were extremely positive. Students liked the script, related to the story, and had very little negative to say. On appeal, interest, and believability, this script tested better than any other draft. Questionnaire and discussion data indicated that all content objectives were strong except for defining opportunity cost. This material was to be presented with special visual animation and the only approximation of it at this stage was the reading of five sentences. Two issues did seem to concern the students: the predictable ending and the loan shark. They felt that the main character would go to the loan shark but that the portrayal of the loan shark was not believable.

For different reasons, both students and treatment reviewers were critical of the loan shark portrayal. Some minor revisions were made, but the script review team remained dissatisfied with the loan shark. Therefore, at the script review stage, the character was dropped and a new solution to the main character's financial problem proposed: he pawns his guitar to get the necessary money.

Rough-cut testing substantiated previous classroom findings on appeal and believability. Students liked the plot and they moved with the music. Animation was still incomplete so students viewed a storyboard-slide presentation. Testing results of the animation and its placement within the story revealed that the opportunity cost objective was better, but not fully achieved. Two production concerns arose at this stage: it was not clear that the band members were sharing costumes and the decision-making chart in the bank scene went by too fast for student comprehension.

Production revisions to slow down the chart and visually clarify the sharing of costumes were made. One final field testing was conducted of the program with the actual animation in place. Appeal and interest were consistent with the prior testing. Both storyline and objective comprehension was improved, but students' ability to define the term "opportunity cost" remained weak. Participants at the May 1982 consortium meeting were also concerned with the weakness of this content objective. Revisions in the finished product were made at the beginning of the animation and during the program's final scene to reinforce the term and its meaning.

Lesson 4

Creditwise: Opportunity Cost

Purpose

To help students apply the concepts of opportunity costs and trade-offs to the area of consumer credit.

Design team report objectives

Program:

1. Students will define opportunity cost as the loss of the next most desirable alternative when limited resources are used for one purpose instead of another.
2. Students will describe how credit provides a means of buying now at the cost of reducing future spending power.
3. Students will describe how interest charges are the cost of using credit.
4. Students will be able to explain how borrowing more money than they can pay back from future income can cause serious financial problems.
5. Students will be able to explain why in times of inflation (rising prices) the real rate of interest can be lower than the nominal rate of interest paid on loans.

Program & teacher:

6. Given a situation requiring a personal credit decision students will be able to use the explicit six-step model outlined in Lesson 1.

Final objectives as they are written in the teacher's guide

1. Define "opportunity cost" and give examples of the opportunity cost of using credit.
2. Explain why interest charges are the cost of using credit and why they tend to be high in times of inflation.
3. Apply the decision-making model to credit decisions.

Program summary

Tina Leland is shopping with her friend, Becky. She uses her mother's credit card to buy impulsively, while Becky analyzes priorities and chooses not to purchase anything in the store. When Tina discovers that the credit card limit has been reached, she borrows money from a reluctant Becky and also uses cash needed to repair the brakes on her car to make a deposit on a jacket.

At home, when Tina runs into the bumper of her father's car, he takes away the keys until she gets her brakes fixed. Her mother, who needs to use the credit card, is angry to learn that Tina has already charged the limit. Tina asks her younger sister, Paula, for a loan, and Paula chooses to charge Tina interest.

During the program, special visuals emphasize the advantages and disadvantages of consumer credit.

Tina's problems continue as she borrows money from other school friends. Her parents lend her money to fix the brakes, but they set up a fixed repayment plan to deduct money from her allowance each week. When Tina borrows more money from her sister, Paula raises the interest rate because Tina is becoming a credit risk who does not repay her debts promptly. Instead of having the brakes repaired, Tina uses the money to repay her loans and pick up the jacket she had in layaway. This leads to trouble when her brakes fail and cause an accident that damages her car.

Will Tina ever learn the opportunity cost of using credit?

Despite the fact that the basic storyline (as described in the program summary) for credit and opportunity cost did not change, numerous other issues arose that slowed its progress. The basic plot of a girl abusing her mother's credit card, borrowing from friends to buy a designer jacket, and having a car accident changed very little throughout the developmental process. However, the issues of the program's tone (soap opera, "Twilight Zone," or straight drama) and the style of didactic interventions were concerns that persisted throughout the process. An initial treatment set up the basic story and characters; all the main characters were black and the story was "soap operish" interspersed with didactic teen interviews in a library concerning their personal experience with credit (the use of students watching a program and commenting was a successful technique used by AIT in the "Journey Through Stress" program from the *On the Level* series).

Although student appeal and interest at the treatment stage were high, understanding of the content objectives was weak. The treatment called for the program to be played as a soap opera with cliffhanger organ music and a mellow voice-over at appropriate points. Classroom evaluation, however, indicated that students did not perceive the story as a soap opera. The weak objectives were not a major concern at the treatment stage since much of the content was to be carried by the then unscripted student library intervention scenes. Nevertheless, several council and consortium reviewers felt the treatment was a distorted and negative portrayal of credit. A few reviewers were also concerned that the portrayal of the main character was an inappropriate stereotype of a black teenager; future revisions cast the characters as white, upper-middle class.

The writer then drafted a script. The characters were white, the tone still soap opera, and student interventions were to be in a lounge or library; these student interventions were only outlined, not fully scripted. The story ended with Tina thinking about whether or not she should borrow money to buy a moped. Classroom evaluation indicated that students still did not perceive the story as soap opera, credit was seen as both positive and negative, the lounge scenes were boring, and perception of the objectives was improved.

The script was then sent to script review team members who suggested shortening the script by eliminating the moped and changing the sex of the major character's (Tina) sibling from male (Paul) to female (Paula).

At this point, an approved script was sent to production, and a long discussion of the tone of the program ensued between the production house and the project team. The production team did not feel the story had the elements of a true soap opera. After much deliberation, a version of the program was agreed upon that would change the tone of the story from a soap opera to a surreal "Twilight Zone" approach. A new ending was added in which Tina wrecked her car since she had failed to have her brakes fixed. In a dream-like state, Tina awakened to be asked by her friend, "What happened to your car?" While this version was highly dramatic, it was unclear whether the entire storyline had been real or a dream. The project team was concerned that the dream issue would detract from the content.

Evaluators took the rough-cut version to the field, although the student intervention scenes had not yet been produced. The program was tested under two conditions. Under one condition, students viewed the entire drama with no intervention; under another condition, evaluators interrupted the program at various points and tried to simulate the student intervention scenes with the class. Students exposed to the second condition performed significantly better on content objectives but usable dialogue for future production was not obtained. The "Twilight Zone" tone and dream sequence confused the class but did not detract from the program's objectives.

Probably the most important decision that remained was the specific form and dialogue for the student interventions. These two scenes were very important to reinforce the instructional content, particularly the definition

of opportunity cost. The project team in collaboration with the production house, decided to use a series of comments by teenagers about Tina and what was happening to her in the program. The approach to be taken would assume that these teens were friends of Tina's and knew of her plight. The key concepts — opportunity cost and advantages and disadvantages of credit — were reinforced during these interventions with on-screen visuals.

At this point, however, members of the project team began to have serious doubts about the efficacy of the "Twilight Zone" approach with its ambiguous ending. Several team members felt that the surrealism was confusing and detracted from the intended content. The only scene that would have to be reshot to accommodate this decision was the final scene of the program, Tina's car wreck and awakening to her friend's question about what happened. The other required changes would be in the type of music used and the announcer's tone of voice. The team decided to test the program a final time before making a decision.

The student interventions were inserted and the program was evaluated once more with the "Twilight Zone" ending. The evaluation findings were very positive. The program was extremely appealing to students (in fact, the most appealing of all programs tested) and the instructional objectives were significantly improved with the addition of the student interventions and on-screen visuals. The ending, however, continued to confuse students.

The project team decided to present the program -- with the ambiguous ending — at the May 1982 consortium meeting. The consortium members responded very positively to the program, but agreed that the ending should be changed. In a unique group script-writing session, the consortium members and project team worked out the final scene: Tina would have the car accident, at which time a police officer would arrive and ask her how the wreck happened. A series of flashbacks would then reveal how Tina's misuse of credit resulted in her brakes not being fixed. After the consortium meeting, this new ending was shot and the program was completed.

Lesson 6

A Key to Productivity: Human Capital

Purpose

To help students apply the concepts of investment in human capital and productivity to the area of career choices.

Design team report objectives

Program:

1. Students will define increasing productivity as producing more goods or services with the same amount of work (or producing the same output using fewer resource inputs).
2. Students will give examples showing how increasing productivity through education and training (investing in human capital) can lead to higher income.

Program & Teacher:

3. Students will be able to explain that increased education has other benefits in addition to the chance for higher income.
4. Students will be able to show that increasing productivity through education and training has costs as well as benefits. (The opportunity cost of education is often foregone earnings during high school and college, so even a "free" education is expensive.)

Final objectives as they are written in the teacher's guide

1. Define "productivity" and "increasing productivity."
2. Explain the effects of increasing education and training for individuals and society.
3. Give examples of the effects on workers of learning skills that enable them to improve their job opportunities.

Program summary

Brett and Carl work part-time in a locksmith shop. Mr. Reilly, the owner has trained them to use a new key machine, which has increased productivity. Brett is interested in attending a weekend seminar to learn to operate another new lock device, but Carl doesn't want to spend the time.

As Carl and Brett are installing locks in a new condominium building, Lucy Morgan, who also has a locksmith business, recognizes their skills and offers them summer jobs with increased wages. Carl decides to take the new job while Brett prefers to remain with Mr. Reilly so that he can learn necessary skills to work with new equipment.

As the program ends, Carl is thinking about quitting school so that he can continue earning money now, while Brett is considering attending college to specialize in security systems. Brett thinks that an investment in education will pay off in the long run.

This program is the second of two that focus on career education. While the basic storyline of two boys dealing with their future careers remained unchanged during the program development, changes in the job setting were recommended by production (rather than project staff), and a revised script written incorporating these changes.

The initial setting for the treatment and early script stages was a lumber yard. Classroom evaluation of the treatment indicated the story was appealing and believable to students but they perceived the two main characters as between 17-19 years old, older than the target audience. The treatment was, however, an excellent springboard to student discussions. Since the definition of productivity was to be presented in animation and was not included in the treatment, the main message that students received was about getting an education. The review of the treatment by consortium and council members also indicated that the characters seemed too old. Others questioned the employment of a 16-17 year old boy in a dangerous job (running a 24-inch power saw).

Revisions were made (the owner of one business was now a female) and a draft script with animation was taken out to classrooms. The instructional objectives were now achieved but appeal and interest had decreased. The previously evident springboard to discussion was now less evident and the main message coming across was "stay in school."

Finding a location for production was a problem and the entire script was rewritten by another writer following the same general storyline but changing the location from a lumberyard to a key shop. Subsequent classroom evaluation showed that content comprehension was good and the "stay in school" message was less evident. However, general appeal and interest were low, when compared to other programs.

Rough-cut testing confirmed the rather low appeal for our target audience. Students viewed the main characters as 18-21 years old. Some teachers felt the show would be more appropriate in grades 11-12. Despite this, the general content objectives were achieved. Students could define the productivity and give storyline examples. It was recommended that the teacher's guide include other examples of increasing productivity more appropriate for the target audience, and other benefits of education and training.

Lesson 7

Private or Public? Public Goods & Services

Purpose

To help students apply the concepts of public goods and services to the consumer in the economy.

Design team report objectives

Lesson 7 is the "wild card" lesson; the objectives were not specified by the design team.

Final objectives as they are written in the teacher's guide

1. Define the terms "non-exclusive" and "shared consumption" (joint use).
2. Explain how the principles of "non-exclusion" and "shared consumption" (joint use) relate to the provision of public goods.

Program summary

The sophomore class decides to clean up the vacant lot next to the school and make it into a student park. Mr. Hanley, the owner, agrees that it would be a good idea. The new park is so attractive that other people in the community begin to use it, and the students can't find places to eat their lunches. Yet they can't exclude "outsiders."

Holly, Graham, and Raphael, student council members, meet with Mr. Blount, the mayor, to request that the city purchase the park. The city planner, Ms. Bortnick, agrees that the park could be owned by the city since it would fit the criteria of shared consumption and non-exclusion. Mr. Dalloway also sees that the park location would be perfect for his fast food concession, and he offers to buy the lot from Mr. Hanley.

As the mayor and city planner weigh the costs and benfits of the students' proposal, a rally is held. At the rally students actively promote the benefits of city purchase, while Mr. Dalloway presents his position in favor of private ownership. The community is divided on the issue. As the program ends, the mayor asks, "What should we do now?"

This program was the "wild card" program in the series, that is, its objectives were not delineated by the original design team. The decision was made at the June 1981 consortium meeting to allow the project team the luxury of a "wild card" program, since many consortium members felt that an additional lesson might be necessary to accomplish all objectives specified for the existing programs. In November 1981 the content consultant and the project team, at the request of the Joint Council, decided to focus this program on the principles of non-exclusion and shared consumption (joint use) as they apply to public goods and services.

The initial treatment for this program involved the use of a private road by teenagers as a short cut to get to a lake and a confrontation between the teens and the owners of the road. Students found this program moderately appealing and believable. Council and consortium reviewers expressed no major concerns with the treatment; they did, however, note the technical nature of the objectives. A review by the content consultant also pointed to several needed revisions of the treatment. He felt that the story was too simple and did not have the potential to adequately deal with all aspects of the objectives.

A new script was written that focused on students clearing a vacant lot and making it into a school park. Classroom evaluation indicated that this program was believable and fairly interesting. While storyline comprehension was generally good, there were problems with the objectives of differentiating public goods and services from private goods and services, and applying the principles of non-exclusion and joint use. Script review members indicated that the overall situation was still too simple in its depiction of complex issues, and recommended additional examples be included in the program to better illustrate the concepts. Two additional examples were written into the script, and it was sent to the production house.

Since this lesson was the last of the programs to be written and produced, the rough-cut was not ready for evaluation until the summer of 1982. It was not evaluated in classrooms but with groups of students brought to AIT. The findings of this evaluation were positive. The program was appealing to students and they comprehended the key content points. Based on these findings, no changes were recommended for the program.

Lesson 9

Market Prices: Supply & Demand

Purpose

To help students apply the concept of changing market prices to the area of consumers and the marketplace.

Design team report objectives

Program:

1. Students will describe how prices influence consumer decisions about the kinds and amounts of goods and services that are purchased.
2. Students will be able to explain how changing prices encourage the production of goods consumers want to pay for, and discourage the production of goods consumers do not want to pay for.

Program & Teacher:

3. Students will be able to explain how changes in production affect individual incomes, and how changes in individual incomes affect who gets what goods and services.

Final objectives as they are written in the teacher's guide

1. Describe how prices influence consumer purchases.
2. Describe how prices influence people's income.
3. Explain how prices influence what is produced and in what quantities.
4. Explain with examples, how changes in supply and demand affect consumers, workers, and business.

Program summary

Through a series of vignettes and documentary segments, this program illustrates the far-reaching effects of a change in the supply of sugar. Bad weather reduces the sugar beet crop in Eastern Europe and the sugar cane crop in the Caribbean, causing the price of sugar to rise. Since many products such as soft drinks and candy are made with sugar, the price of these products increases. Fewer people are willing to buy the higher priced items.

Scenes in a Snack Bar, a fast food restaurant, a candy store, a home, and a movie theater show people deciding not to pay higher prices and instead making substitute purchases. Some producers and sellers find their incomes decreased, and one worker is shown losing his job.

Producers of substitutes for sugar products find their incomes increasing. Sugar growers in the U.S. also have increased incomes and are able to buy more tools and consumer goods. The program ends with the question: "What kinds of decisions will be made the next year if the sugar crop is a good one and the price of sugar goes down?"

This lesson departed in format from the remainder of the series. Whereas other programs in the series interrupted a dramatic story with one or two brief, didactic special visuals, the program on market prices utilized a documentary format interrupted with dramatic vignettes. (The documentary revolved around characteristic sugar prices and their impact on various producers and consumers of sugar-based products; the consumer side was illustrated in the vignettes.) The scripting stages of the program progressed rather rapidly. The documentary style, however, resulted in a more laborious and time-consuming production process with several alterations after rough-cut testing.

Considering the change in style, the classroom testing of the treatment produced surprisingly positive results. Students indicated the program was interesting, they liked the format, and they thought it was realistic. The data indicated two sources of confusion about the program's content: the issues of time (how long it took after the poor crop for sugar prices to affect consumers) and location (which areas had poor harvests and which areas had good harvests). Most importantly, even at the treatment stage, the objectives came through well to the students. These rather positive student results were contrasted with divided returns from the treatment reviewers. Some respondents felt the format was too drastic of a change from the other programs in the series, while other respondents indicated they thought the format would provide a "much needed 'change of pace'" for the series. The two perspectives were almost evenly divided. Several content issues were also raised by the respondents. A few termed the program an oversimplification (e.g., a fast food worker losing his job because of a poor sugar crop). Others mentioned sugar substitutes as a major contributor to domestic sugar prices and import regulations as a major contributor to imported sugar prices. However, most of the respondents rated all the program's objectives as "highly visible" in the treatment. Based on the favorable nature of the majority of the data, particularly the student data, the project team decided to script the program using the documentary format.

Since the script format was documentary, evaluators employed a slightly different method for presenting the script in classrooms. One evaluator read the audio portion of the script while the other read the video portion of the script. This was a methodological constraint that resulted in the script testing

only crudely approximating the finished program. Student data indicated the program was appealing because as one student said, "we eat a lot of things with sugar in them." Almost all students indicated that the documentary aspects of the program appeared realistic; in discussions, they said some of the vignettes were not realistic, but they were funny and should be left in the program. Students continued to have problems comprehending some concepts in the program. The location of the poor harvest and the reason the harvest was poor remained unclear to many students. Also, few students realized that the U.S. farmer had more money to spend because the cost of sugar was up, which meant few realized that this was the reason the U.S. farm tool business was up. Despite these misconceptions, the program's objectives continued to come through to the students. Based on these findings, the project team decided the program should:

1. Reinforce the location of the poor crops with on-screen visuals.
2. The narrator should specifically explain the scenes involving the U.S. farmer.
3. Better integrate the vignettes with the documentary narration.

With these considerations in mind, the writer drafted another version of the script which was shared with script review team members.

Script review team members suggested only minor revisions. Following the review, the script was sent to production.

Results of the classroom evaluation of the rough-cut pointed to several problems, some of which had persisted from the scripting stage. Once again, the locations of the poor sugar harvest were not clear to the students. The production house had used a planet-like globe with no countries delineated on screen as the narrator described which nations had poor harvests. The data indicated that this visual was not sufficient to reinforce the narration and resulted in substantial numbers of students not realizing that the decreased supply of sugar was caused by poor weather. This confusion also affected students' understanding of why the U.S. farmers' crop was worth more; only half of the students thought it was because worldwide sugar prices had increased because of the decreased supply. Even with these specific comprehension problems, the objectives, with the exception of how prices influence what is produced,

continued to be clear in the program. The project team had an extended meeting to decide how best to make the necessary changes in the program.

The team instructed the production house to:

1. Re-do the narration using a new narrator and emphasize the key concepts more clearly.
2. Insert a new map, which concretely illustrates the locations of the poor harvests.
3. Insert a shot of the U.S. farmer shopping for a new tractor, and reinforce through the narration why his crops were worth more.

These changes were subsequently made and the program completed.

Lesson 10

The Changing Market: Supply & Demand

Purpose

To help students apply the concepts of changes in demand and changes in supply to the area of consumers and the marketplace.

Design team report objectives

Program:

1. Students will describe how a change in consumer demand can lead to changes in the price and quantity of a product supplied.
2. Students will describe how a change in supply can lead to changes in the price and quantity of a product demand.

Program & Teacher:

3. Students will be able to distinguish between changes in demand (people willing to buy different amounts of a good at the same price) and changes in the quantity demand (people willing to buy different amounts of a good when the price changes.)
4. Students will be able to distinguish between changes in supply (people willing to sell different amounts of a good at the same price) and changes in the quantity supplied (people willing to sell different amounts of a good when the price changes.

Final objectives as they are written in the teacher's guide

1. Describe how changes in demand lead to changes in price and in quantity supplied.
2. Describe how changes in supply lead to changes in price and in quantity demanded.
3. Distinguish between a change in demand and a change in quantity demanded, and between a change in supply and a change in quantity supplied.

Program summary

Melisso, Bo, and Ralph want to earn $500 each to take a raft trip down the Colorado River. They order samples of a cologne for men and women and conduct a market survey to determine how many bottles they can sell at various prices. They borrow $100 from their parents and purchase 100 bottles of "Uni-Scent."

The demand is high and on the second day, they raise the price from $2.00 to $2.50 a bottle and sell everything in three days. They order 1000 more bottles with a $100 downpayment. The $2.50 price, however, results in another supplier entering the "Uni-Scent" market. The increased supply lowers the price they can get for their product and they begin to worry.

One bottle accidentally spills in Ralph's kitchen and his mother sees that one of her problems is instantly solved. "Uni-Scent" kills roaches. Ralph, Bo, and Melissa change the name of their product to "Un-Sect" and the program ends with an increased demand for the new product which "eliminates roaches for good."

This lesson was difficult to complete. The difficulty was fostered by a complex set of objectives that sought to emphasize both supply and demand and quantity supplied and quantity demanded. These notions were all connected to price. The concepts of supply and demand are frequently illustrated with charts and graphs. However, during the evaluation of the instructional design, most teachers and several reviewers thought that the use of charts and graphs should be minimized in the series. The project team also felt that extensive use of charts and graphs was not necessarily the best use of the medium. Thus, the ongoing struggle in completing this lesson was to accomplish the objectives using a minimum of charts and graphs.

The first draft treatment (a group of boys were on a camping trip and bartered with one another using different goods, depending upon the changing conditions) encountered numerous problems. This draft was not evaluated in classrooms since the project team was anticipating major problems with the treatment. Indeed, these expected problems were identified by the treatment reviewers. Several reviewers indicated the program was too complicated and the use of "commodity money" (sunglasses, candy) was confusing to the novice. Reviewers also raised a variety of storyline concerns which indicated that there were negative character stereotypes, and that the entire storyline was too contrived. The entire treatment idea was scratched.

The project team and the writer brainstormed ideas for a new storyline. Since the treatment was one of the last to be started and there were problems with it, the program was almost immediately behind schedule. The writer immediately wrote a draft script that was tested in classrooms. (The story revolved around three young entrepeneurs who entered the perfume business to make money for a Colorado raft trip. Demand for the perfume ("Uni-Scent") was high and they were able to raise the price. Anticipating continued demand, they order a much larger supply which begins to rot before they can sell it. But, they discover it works equally well as a roach killer. Since their town was having a severe roach problem, they enter the roach-killer business.) Classroom testing revealed several problems with this draft. Students didn't think the perfume rotting was believable The young entrepeneurs in the story had been conducting their business in the school; students indicated this was not realistic. More importantly, the two objectives that dealt with supply were not being met.

Since the team was racing the clock to complete the program, this draft script was concurrently tested in classrooms and submitted to script review team members. Script review team members reinforced the classroom findings. They questioned the reality of students being allowed to sell perfume in the school. They also indicated the two objectives dealing with supply were not adequately covered.

At this point, the project team had assumed that animation would be required to reinforce the objectives. Since the findings had indicated the notion of supply was not coming through at all in the storyline, the writer drafted a new script, trying to incorporate the notion of supply in the storyline. The basic story premise — youngsters entering the perfume business — remained the same. Instead of the perfume rotting, however, a competitor entered the perfume busines, increasing the supply, while the demand remained constant. Also, the action of the story was moved out of the school into a shopping center. Since the schedule was pressing, this draft was not evaluated in classrooms. Instead, minor modifications were made in-house with the help of the content consultant and the script was sent to production.

The rough-cut was then tested in classrooms, although it still did not contain animation. The program was moderately appealing to students and held their attention. Portions of the storyline continued to be misunderstood by the students, particularly why the competitor (Loretta) entered the market. This resulted in problems with the two objectives relating to supply. Also, the colors that the production house had used on the demand chart made it hard for students to read the chart.

Given these findings, the project team met with the program's producer to decide on the final program changes. The most important was how to reinforce the content objectives. First, the team agreed the program had to clarify that Loretta (the competitor) entered the market because she wanted to make money. Also, the team decided not to use animation. Rather, the key content components that were present in the program would be visually repeated while an announcer didactically described the concepts. These changes were subsequently made and the program was accepted.

Lesson 11

Take Your Choice: Substitution

Purpose

To apply the economic concepts of substitution to the area of consumers and the marketplace.

Design team report objectives

Program:

1. Students will recognize that there are substitutes for almost everything.
2. Students will explain how changing prices encourage consumers and producers to make substitutions.
3. Given a situation in which the price of a good or a service increases because of a decrease in supply, students will be able to give examples of other goods and services that might be substituted for this good.
4. Given a situation in which the price of a good or service decreases because of an increase of supply, students will be able to give examples of other goods and services for which this good might be substituted.

Program & Teacher:

5. Students will be able to explain that substitution does not have to be an all or nothing thing. (Changes in relative prices can result in substituting a little more of one thing for a little less of another -- marginal changes -- which can help individuals and the economy adjust to changing circumstances.)
6. In situations like 3 above, students will be able to explain how the price of a substitute might increase as the result of increased demand for the substitute.
7. Students will be able to explain how producers of goods and services which are substitutes can be seen as competitors, even though they are not in the same business, for example, breakfast cereals, bacon and eggs.

Final objectives as they are written in the teacher's guide

1. Give examples of substitute goods for producers and consumers.
2. Describe why producers and consumers make substitutions when prices change.
3. Explain how producers of substitute goods and services become competitors.

Program summary

Mr. and Mrs. Dougherty are trying to "make ends meet" by substituting wood for heating oil and by purchasing less expensive food than usual. Business is slow in Dougherty's general store. The Doughertys decide that their son, Brian, must sell his beloved horse, Jasper, since the cost of keeping a horse is increasing. Brian can't earn extra money because his time is spent in school and in working for his father.

As Mr. Dougherty tries to fix his truck to deliver mail and supplies to a nearby mining community, there are scenes of substitutions being made by customers and suppliers in the general store. When Mr. Dougherty fails to return from making deliveries, Brian rides Jasper to search for his father. He finds the truck smashed in a ravine. His father is alive but suffers from a broken leg and worries about future deliveries. As the program ends, Gramps, who lives nearby, and Brian have found a solution to the problems of both father and son. Another substitution is made — Jasper is used to make deliveries.

The developmental progression of the program on substitution can best be termed gradual; while the basic storyline and characters remained the same, each of the two treatments and four draft scripts made some changes, usually minor, until a satisfactory program was achieved.

The idea of a boy living in a poor, rural setting, trying to save his horse from being sold was conceived in the first treatment. In contrast to other programs, much of the content was visible in the treatment. Student interest, however, was a problem at the treatment stage; the students perceived that the main character was too young. Treatment reviewers concurred. They also pointed out some negative character stereotypes. The project team was cautioned not to depict old people staring off into the distance and several doubted that a Hispanic would be working in a grocery store in a small mining community. Consistent with student findings, reviewers indicated the objectives were highly visible in the treatment. Given the relative strength of the objectives, the writer was instructed to draft a script that would enhance the program's appeal and present the main characters in a less juvenile fashion.

One script version attempted to do this by increasing the drama. In the scene, Brian, the main character, is told he has to sell his horse because it is old; it would be used for horsemeat in the city zoo or for riding at a stable in the city. Another way to add interest was to provide Brian with a girl friend who also had a horse; the loss of Brian's horse was to affect his potential romantic relationship. These scenes were rejected by the project team as distracting to the plot.

The major dramatic incident was a truck accident that would enable the horse to be a substitute and be saved. Until the third draft script, the grandfather was involved more in the story and was the accident victim. The entire

accident was to take place off-camera. With the third draft script, his role in the program was diminished and Brian's father became the accident victim. To add drama, the accident was now to occur partially on camera. Because rough-cut evaluation results indicated the students thought it appeared fake, other changes were made to add drama and realism to the accident scene.

The instructional content of the program was presented in three ways. From the initial treatment, a conversation between older women shopping in the family-owned store was to stress different types of substitutions. Minor changes in the scene and dialogue were made at each stage to make it realistic and to include appropriate examples. One scene that added both instructional content and appeal was inserted in the third draft script. It involved Brian's mother's use of various food substitutes — soyburgers instead of hamburgers, cole slaw instead of salad. During rough-cut testing, this scene evoked reactions (laughs and comments) from the students, a good sign. The final instructional opportunity contrasted the pony express being replaced by the railroad with the Dougherty's delivery truck being replaced by a horse.

A number of other changes were made based on the formative evaluation. The initial name for the horse was Luv. Students found it corny and it provided some confusion regarding the objective when it was used to make a play on words. ("There's no substitute for Luv"). Script testing found that males liked the show significantly more than females. Except for the mother, there were no females in the program at this point. Thus, the doctor was cast as a female.

Throughout the development of the program, the content objectives were generally being achieved; some minor changes and additions were made. The prime cause for revisions was an attempt to increast student interest and appeal. The rough-cut evaluation findings indicated the program was satisfactory.

Lesson 12

Why Competition? Market Structure

Purpose

To help students apply the concepts of competitive and non-competitive prices to the area of consumers and the marketplace.

Design team report objectives

Program:

1. Students will describe the difference between an administered price and a market price.
2. Students will explain how competition usually help lower prices and protects consumers.

Program & Teacher:

3. Students will be able to discuss alternative ways of dealing with non-competitive market situations. (Break up into competitive units, regulation, do nothing.)
4. Students will be able to explain the role of advertising in both competitive and non-competitive situations.

Final objectives as they are written in the teacher's guide

1. Distinguish between competitive and monopoly prices.
2. Explain how competition contributes to lower prices and helps protect consumers.
3. Describe alternatives for dealing with monopolies.

Program summary

John, Eve, and Ira discover that they can no longer bring their own popcorn to the high school basketball games. When Ms. Kilgarry, the manager of the concession stand, raised her prices, Ira accuses her of monopolistic price gouging. He encourages a student boycott, and a demonstration breaks out.

Ira and Ms. Kilgarry discuss their differences with Mr. Chang, the school principal. He points out that noisy demonstrations are unacceptable, but he agrees to allow Ira to set up a competitive stand at the games. Ms. Kilgarry points out that for many years no one else was willing to operate the concession stand and now that attendance is up she deserves to make a fair profit. Ira enlists the help of John and Eve. They charge lower prices and gain the student business, but John and Eve find that Ira's prices don't let them make much profit.

At the next game, Ms. Kilgarry offers "specials" to attract more customers, and John and Eve surprise Ira by conducting their own "Top Hat Service at Your Seat." Competition becomes intense and prices drop.

At the end of the season, Mr. Chang offers the concessions for next year to Ira. Ira declines because the stand has been taking too much time and he hasn't made any money. Ms. Kilgarry is willing to negotiate and the principal considers four options: open competition; unregulated monopoly; monopoly to the bidder who promises the lower prices; and regulated monopoly with price controls.

The program on market structure went through three distinctly different treatments. The first treatment was based on the electronic game craze. This treatment was rejected by the project team due to its oversimplification of the monopoly issue and the possible faddish nature of electronic games. The second treatment was sent out to reviewers and evaluated by students. In this version, a school photographer started to receive competition from students dissatisfied with his work. About one-third of council and consortium reviewers did not like the treatment: it was not an example of a monopoly because the photographer had bid for the business, the objectives were weak, and the entire situation was not conducive to further development. Students gave the treatment the lowest appeal rating of any program and did not find it believable. Based on these results, the project team decided a major rewrite was warranted.

At this point, another writer was brought in to develop a new treatment. Due to time constraints, the first version of this treatment was accepted by the project team and the draft script evaluated in classrooms. This version focused on a concession stand monopoly at high school basketball games. Some student patrons objected to monopoly prices and set up competition. Initially, animation was to be included in this program. Later the project team decided it was unnecessary; this decision was confirmed by evaluation findings.

Students comprehended the storyline but expressed some reservations about the story's believability: they felt that a student would be suspended for causing a near-riot and students would bring popcorn instead of sandwiches to a basketball game. The instructional objectives on competition, monopoly, and their effect on prices were being achieved.

Revisions were made in the script and it was submitted to the script review team. Script review team members cautioned the project team not to portray Ms. Kilgarry, the concession stand owner and symbol of a monopolist, as too harsh. Also, script review team members felt that the chanting scene should not be played as a near-riot. The script was then submitted for production.

The rough-cut evaluation findings indicated the program appeal was relatively low but adequate. Students felt that Ms. Kilgarry, the owner of the monopoly, was negative and a hard person and that the initial confrontation

(chanting) scene was too long. The evaluation staff also recommended that the Chinese principal not be portrayed as a conniving person in the final scene. Despite these problems, the instructional objectives were adequately comprehended by the students.

While an on-going fear for this program was not to depict Ms. Kilgarry as a harsh person, students perceived the portrayal of her character in the rough-cut to be very negative. At the request of the project team, several scenes involving Ms. Kilgarry were subsequently re-shot and the character was depicted less harshly. The project team was also very concerned that the final scene, in which the Oriental principal tries to make a decision, presented a negative stereotype. This scene, too, was subsequently re-shot, with the principal presented as more genuine and less conniving.

Other Evaluation Activities

Although information to improve the video programs was certainly the major thrust of the formative evaluation, other aspects of the project utilized data from the project's broad constituency. The development of the teacher's guide and the search for a series title each had their own unique information requirements.

Teacher's guide

The teacher's guide for *Give & Take* was important for several reasons. First, the series design delineated a set of "program and teacher" objectives that were intended to be achieved with teacher follow-up to the programs. Since there was expected to be a broad range of teacher competencies and teacher comfort in dealing with the content of the issues, the guide was viewed as critical support material to help insure that these objectives were understood and could be met. In addition to helping achieve the intended lesson outcomes, the guide could also help a teacher broaden the material beyond the programs.

Teachers who had participated in the evaluation of the initial content design reviewed several of the scripts. In addition, these teachers supplied information on their current coverage of the concepts, how they would spend time preparing to use the program, how much follow-up time would be necessary on their part for their students to understand the program's concepts, and on which concepts they would focus their follow-up efforts. This information was reported to the guide writer to help her tailor the lessons to teachers' needs.

An initial draft teacher's guide for the lesson on public goods and services was evaluated by a panel of five social studies teachers who had previously participated with their classes in script evaluations. They met as a group to assess their general attitudes about teacher guides and to get their specific reactions to the draft lesson. The data were gathered using questionnaires followed by a focused discussion. Their general perceptions of teacher's guides they had used in the past were:

1. The guides contained too much information and were not written in a concise style.
2. The material tended to be written for the high school level (these were junior high teachers). These teachers emphasized the tremendous differences

between a low-ability eighth grader and a high-ability tenth grader.

3. The parts of the guide that tended to be most useful and most used were:

   a. Program Summary
   b. Before Program Activity
   c. After Program Discussion Questions

Teachers then reacted to the draft lesson on a section-by-section basis. These findings indicated that the teachers thought much of the information, particularly in the commentary section, was "too technical." They suggested a box with basic terms defined might simplify the commentary section and serve them adequately. Key terms were subsequently defined in a box for all lessons. They also indicated the "Before the Program" activity was too complicated and would take too much time. They suggested simplifying and narrowing the focus of this section so their students would begin to think about "what taxation is and how it relates to public goods and services." Finally, for the after the program discussion questions, these teachers suggested more questions that could apply to students with varying levels of knowledge/ability in different grade levels. The overall message coming from these teachers about the guide was to "make it as organized and basic as possible."

Following this preliminary evaluation, the guide writer drafted two lessons that were extensively evaluated. These lessons were mailed along with questionnaires to the entire pool of 165 treatment reviewers. The two lesson guides were also evaluated by a teacher panel. The results of this evaluation were that the reviewers tended to respond positively to both lessons, with most rating them "good" or "excellent" and "about the same as the *Trade-offs* guide." Most of their suggestions for changes were on the technical aspect of the commentary section, but there was very little consensus. Teachers also responded quite positively to the lessons, rating them "better than most" other guides they had seen.

Given these results, the writer drafted the remaining guide lessons, which were reviewed by the content consultant and the staffs of AIT and the Joint Council. These lessons were then shared with those in attendance at the April 1982 consortium meeting. Several suggestions for specific changes were made at this meeting. After the consortium meeting one final review was made by a consortium member, who was a Council Director. Following this final review, the guide was completed.

Series title

From the initial conceptualization of the prospectus in 1980 through the July 1981 design report, the working title of the series was "Economics and the Individual." The title decision, like all project decisions, was made after careful consideration of data from a variety of sources. Even the brainstorming of potential alternatives was a collaborative process. Potential titles were received from those in attendance at the June 1981 consortium meeting. More alternatives were submitted by the staffs of AIT and the Joint Council. Ten potential titles were culled from this extensive list.

These ten titles were evaluated at AIT by twelve Bloomington-area students. The staffs of AIT and the Joint Council also commented. From this list of ten, the field was narrowed to two: "Options" and "Give & Take."

Over 150 copies of a tentative graphic for "Options" and "Give & Take" were mailed to consortium/center representatives along with an evaluation form. This form addressed two issues: the title they felt was most appropriate and whether or not they liked the corresponding graphic. The results from this activity were inconclusive; those preferring "Options" and those preferring "Give & Take" were almost equally divided.

Ten teachers who had participated in the verification of the series design document were polled over the phone. Again, the voting was very close with six teachers preferring "Give & Take" and four teachers preferring "Options." Of the teachers who picked "Give & Take," the most common reason cited was that "Give & Take" was "catchy," while "Options" sounded "boring."

In testing treatments for programs 1, 2 and 3, evaluators visited several classrooms. In the course of this testing, students became familiar with one program and gained a sense of the series direction. When time allowed, evaluators polled students for their title preference by writing the two titles on the board and taking a hand count. Of the 107 students polled, an overwhelming majority (81%) preferred "Give & Take." Interestingly, when the titles were being written on the board, students would guess and correctly proclaim "Give & Take" well before the evaluator had completed writing it, usually after the "a" or "n" in the word "and" had been written!

Thus, among consortium/center representatives and teachers, the preferences were almost equally divided, with "Give & Take" slightly more popular

with teachers. However, students overwhelmingly preferred "Give & Take."

Finally, one other group was consulted; the AIT User Services Department, which in addition to having responsibility for marketing the series, was also most aware of children's programming in television and radio. This department preferred "Give & Take" and indicated that National Public Radio has a weekly program entitled "Options in Education" which was frequently shortened to simply "Options." They warned of possible confusion among broadcasters and educators.

Hence, after three months, the title that was chosen was *Give & Take*.

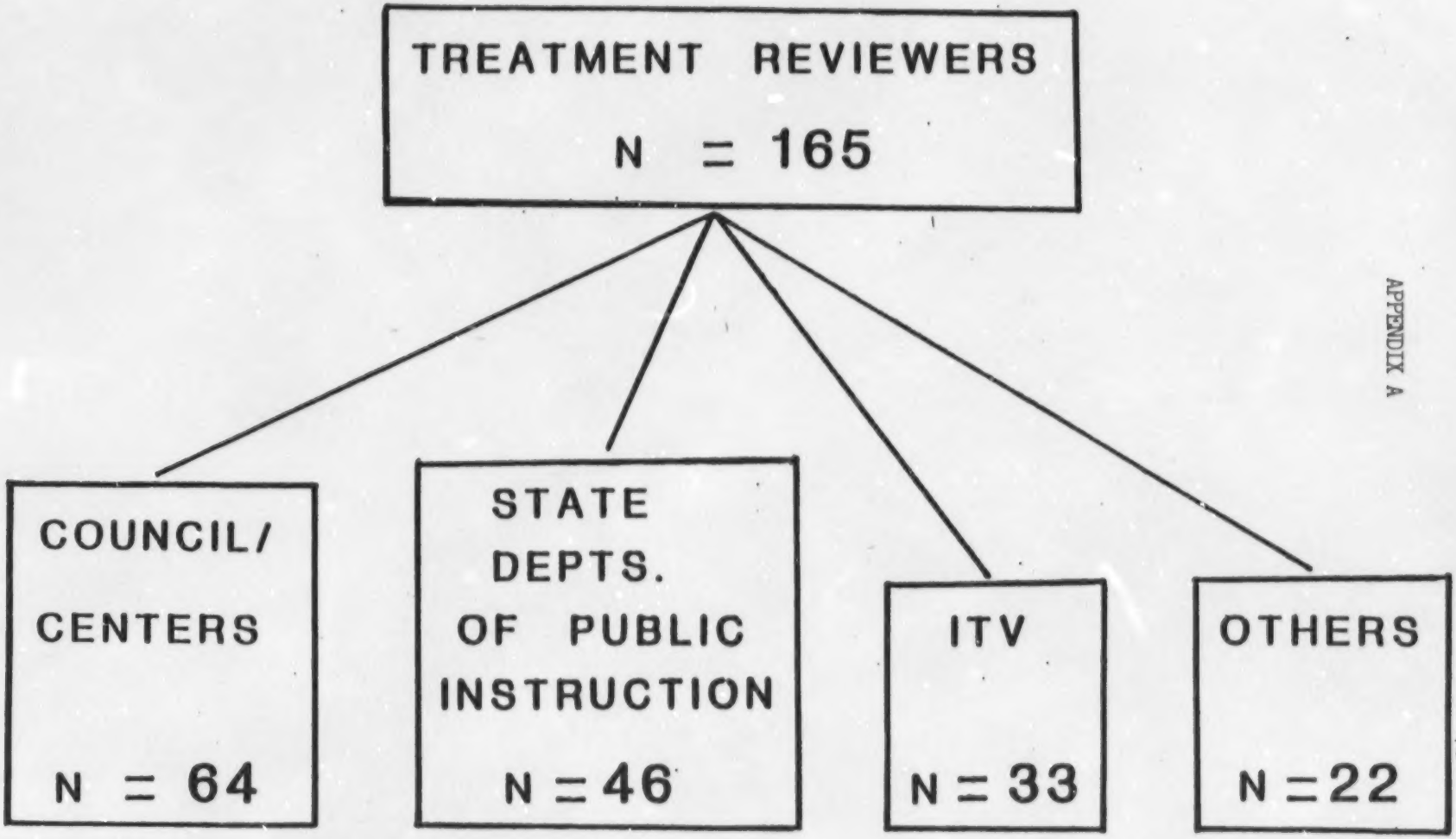
Epilogue

The development of *Give & Take* was a deliberate and fluid process. Formative evaluation was integral to this process. An immense amount of data was collected during the formative evaluation. It was through these extensive data collection activities that the project team became aware of the concerns of the project's broad constituency. Of course, through this process these various audiences also became aware of the directions the series was taking. The project team's on-going struggle was to integrate the findings from this broad range of audiences into the final product.

The backbone of the evaluation was the classroom testing. A large number of target-age students were involved in this classroom testing. In a sense, the entire series has already been learner-verified. The validity of this research, however, awaits the summative research, which will be conducted under the auspices of the Joint Council on Economic Education in 1983-84.

GIVE & TAKE

EXTERNAL REVIEW PARTICIPANTS



APPENDIX A

APPENDIX B

SCRIPT REVIEW TEAM

John Clow
Joint Council for Economic Education

June Gilliard
Joint Council for Economic Education

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Canadian Foundation for Economic Education

Linda Riekes
St. Louis Public Schools

Bruce Roald
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Larry Walcoff
Agency for Instructional Television

Lucille Wong
Hawaii Department of Education

LIST OF SITES AND CONTACTS*

Sites Listed Alphabetically by State	Contacts
Arkadelphia, Arkansas Fort Smith, Arkansas Jacksonville, Arkansas	Dr. Phil Powell, Executive Director Arkansas Council on Economic Education
Stockton, California	Dr. Ron Banaszak, Director Center for Economic Education University of the Pacific
Boise, Idaho	Dr. Gerald Draayer, Executive Director Council on Economic Education Boise State University
Columbus, Indiana	Mr. Paul Poe, Chairman Social Studies Department Central Junior High School
Indianapolis, Indiana	Dr. Michael Watts, Director Center for Economic Education IUPUI
Lafayette, Indiana	Ms. Joann Troutner Lafayette Public Schools
Muncie Indiana	Dr. Marianne Tallafuse, Associate Director Center for Economic Education Ball State University
Bullit County, Kentucky Louisville, Kentucky Oldham County, Kentucky	Ms. Peggy Walther Center for Economic Education University of Louisville
Detroit, Michigan	Dr. Ethel Washington Home Economics and Consumer Education Detroit Public Schools
Flat Rock, Michigan	Ms. Jan Lloyd, Acting Director Michigan Consumer Education Center Eastern Michigan University
St. Louis, Missouri	Ms. Calla Smorodin St. Louis Public Schools
Cincinnati, Ohio	Ms. Helen Rindsberg Coordinator of Consumer Education Cincinnati City Schools

*These people were the primary contacts for each site. In addition to them, we must gratefully acknowledge the assistance and cooperation of the many school administrators, teachers, and students who took time to be a part of this evaluation.

-over-

Sites and Contacts (continued)

Sites Listed Alphabetically by State	Contacts
Cleveland, Ohio	Ms. Ruth Faulkner Cleveland City Schools
Columbus, Ohio	Ms. Karen Heath Consumer Economics Education Unit Ohio Department of Education
Richmond, Virginia	Dr. Charles Gallagher Executive President Virginia Council on Economic Education

APPENDIX D

TREATMENT QUESTIONNAIRE

Give & Take

Program #11

Name _____

Agency _____

Position _____

DUE AT AIT BY JANUARY 18, 1982 (TABULATIONS WILL BE COMPLETED ON THAT DATE)

1. After viewing a program based on this treatment, the viewer should acquire certain essential understandings or ideas related to general and personal economics. Following is a list of the objectives designed for this treatment. Do not read treatments without first studying the objectives. Using the following key, rate each statement according to its visibility in the program. If you feel your choices need additional explanation, and/or you have other comments about the statements, write them in the comments section.

A = highly visible

B = only slightly visible

C = not visible at all in this treatment

PROGRAM OBJECTIVES:

___1. Students will describe the difference between a monopoly price and a competitive price.

___2. Students will explain how competition usually helps lower prices and protects consumers.

PROGRAM AND TEACHER OBJECTIVES:

___3. Students will be able to discuss alternative ways of dealing with non-competitive market situations. (Break up into competitive units; regulation, do nothing.)

___4. Students will be able to explain the role of advertising in both competitive and non-competitive situations.

COMMENTS:

2. Will this program increase students' economic understandings? (Check only one.)

___definitely
___probably
___probably not
___definitely not

3. Will the program improve students' decision-making skills? (Check only one.)

___definitely
___probably
___probably not
___definitely not

4. Is the storyline (plot/action) written at the appropriate level for target-age (13-15) students?

___yes ___no

If not, why not?

5. Will target-age students be able to relate to the main characters?

___yes ___no

If not, why not?

6. Is the portrayal of any character in the story a negative or inappropriate stereotype?

___yes ___no

Please cite specific examples:

7. Do you have any other general concerns or comments about the treatment?

APPENDIX D

Program #1

Student Questionnaire

(1-2) Grade Level (circle): 7 8 9 10

(3) Male _____ Female _____

(4) School _____ Period _____

(5)

1. Do you think a television program made from this script would be

_____ very interesting

_____ sort of interesting

(6) _____ not very interesting

_____ not at all interesting

2. Were the teenagers in this story believable?

_____ yes, very believable

_____ yes, sort of believable

(7) _____ no, not very believable

_____ no, not at all believable

3. What are the alternatives that Pepper and Lilly consider to solve their problem? (Check only one)

_____ hire another painter

_____ ask for more time

(8) _____ work at nights

_____ all of the above

4. What are the scarce resources that Lilly and Pepper must deal with in order to complete their job? (Check all that apply)

(9) _____ peeling wallpaper

(10) _____ money

(11) _____ falling plaster

(12) _____ time

5. When a resource is scarce, what is the best thing people can do? (Check only one)

_____ fight over that resource

_____ forget about that resource

(13) _____ choose among different ways to use that resource

_____ wait until they find more of that resource

-over-

Program #1
Student Questionnaire
Page 2

6. Which of the following best defines scarcity? (Check only one)

_____ not having enough of something to live well

_____ having enough of something but not knowing what to do with it

(14) _____ not having enough of something that has many possible uses

_____ not having enough of something you like

7. Jessica is bored and wants to do something on Friday night. She knows what the problem is and has listed her alternatives. What should her next step be? (Check only one)

_____ make a decision

_____ ask her parents

(15) _____ list her criteria

_____ evaluate the alternatives

8. If they can't hire more help, what does the grid on the board indicate their decision should be?

_____ work nights

(16) _____ extend deadline

_____ the grid does not indicate a definite decision

9. What does the "0" in the grid mean?

(17)

10. What does the "--" in the grid mean?

(18)

11. Give an example of scarcity:

(19-20)

12. Did you learn anything new from this program?

_____ yes, a lot

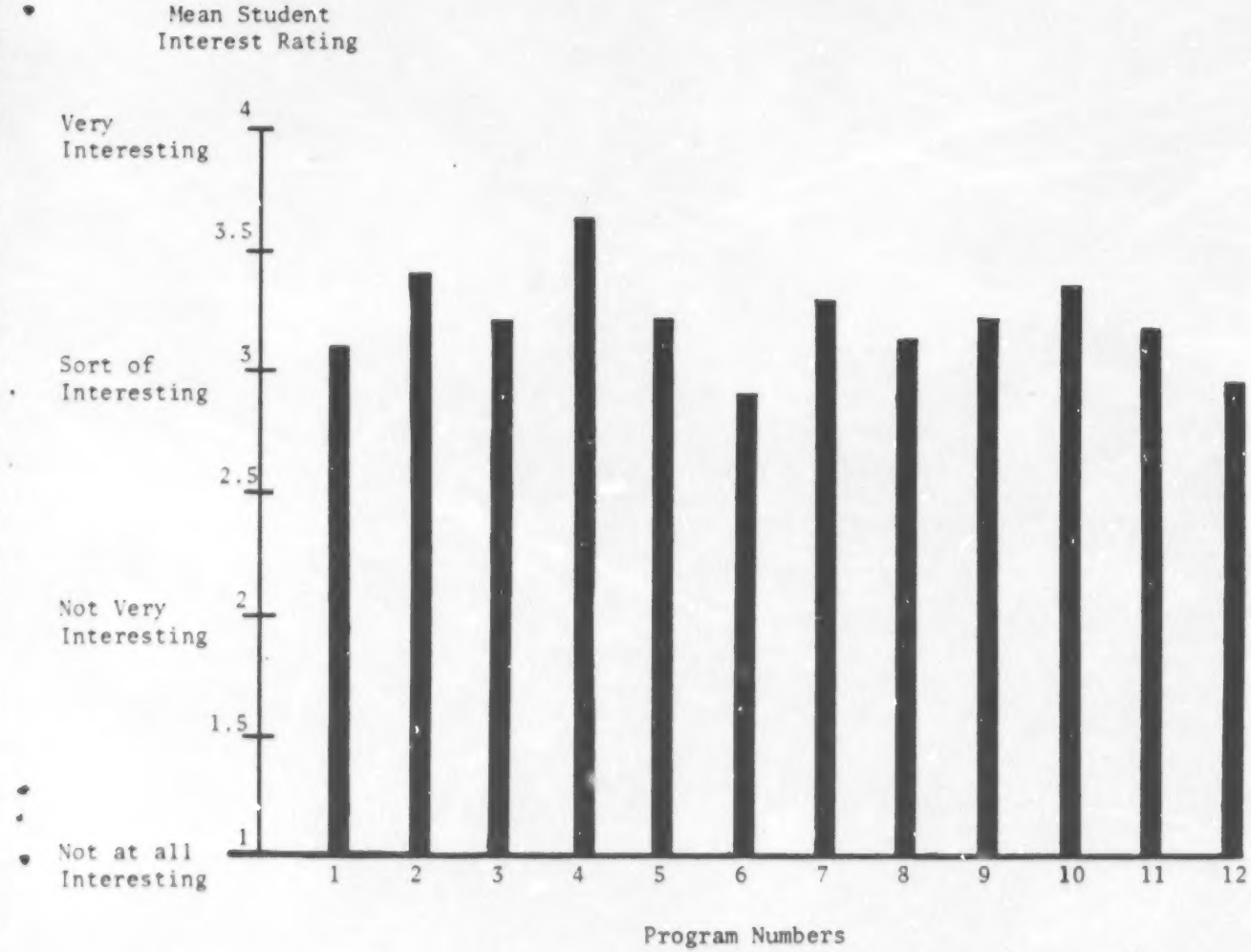
_____ yes, a few things

(21) _____ no, not a lot

_____ no, nothing at all

APPENDIX E

ROUGH-CUT PROGRAM
STUDENT INTEREST RATING



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